CLAIMS

1. A gyro sensor comprising a primary base plate formed of a semiconductor substrate and provided with a detection mass body, a driven mass body and a detecting element, said detection mass body being displaceably supported relative to a support base plate in a plane along said support base plate through a detection spring having one end fixed to said support base plate, said driven mass body being connected to said detection mass body through a drive spring and adapted to be driven in such a manner as to be vibrated in a direction intersecting with said support base plate, said detecting element being adapted to detect a displacement amount of said detection mass body in the plane along said support base plate, wherein said detection spring extends from said detection mass body in only one direction along said support base plate so as to support said detection mass body relative to said support base plate in a cantilever manner.

2. The gyro sensor according to claim 1, which includes at least two of said detection springs each extending from said detection mass body in said direction and having flexibility in the displacement direction of said detection mass body, wherein respective distal ends of said detection

springs are connected to one another continuously and integrally through a coupling segment which has rigidity and extends in the displacement direction of said detection mass body, said coupling segment having an intermediate portion fixed to said support base plate.

3. The gyro sensor according to claim 1 or 2, wherein said driven mass body and said detection mass body are disposed parallel to one another, and said drive spring is disposed between said driven mass body and said detection mass body and formed as a torsionally deformable torsion spring.

4. The gyro sensor according any one of claims 1 to 3, wherein either one of said driven mass body and said support base plate has a driven-mass-body-protecting protrusion provided in a protruding manner thereon to regulate a maximum vibrational amplitude of said driven mass body.

5. The gyro sensor according to any one of claims 1 to 4, wherein said detecting element includes a plurality of movable comb-tooth segments each provided in a protruding manner on the inner peripheral surface of a cutout hole formed in said detection mass body, and a plurality of stationary comb-tooth segments each provided in a protruding manner on the outer peripheral surface of a stationary member disposed within said cutout hole and in

opposed relation to a corresponding one of said movable comb-tooth segments.

6. The gyro sensor according to claim 5, wherein said detecting element is adapted to detect the displacement amount of said detection mass body in accordance with change in electrostatic capacitance between said movable comb-tooth segments and said stationary comb-tooth segments, said detecting element including a capacitance-adjusting electrode which is disposed in opposed relation to said detection mass body in the displacement direction of said detection mass body, and adapted to adjust an electrostatic capacitance value between said movable comb-tooth segments and said stationary comb-tooth segments by means of an electrostatic force to be generated between said capacitance-adjusting electrode and said detection mass body in response to a voltage applied therebetween.

7. The gyro sensor according to any one of claims 1 to 6, which includes a stationary driving electrode which is disposed on a surface of said support base plate opposed to said driven mass body, and adapted to vibrate said driven mass body by means of an electrostatic force to be generated between said driven mass body and said stationary driving electrode in response to a vibration voltage applied therebetween.

8. The gyro sensor according to any one of claims 1 to 6,

which includes a stationary driving electrode which is disposed on a surface of said support base plate opposed to said driven mass body in such a manner that it is divided into two pieces at an intermediate position of said surface in the displacement direction of said detection mass body, and adapted to vibrate said driven mass body by means of electrostatic forces to be generated between said driven mass body and respective ones of said divided pieces in response to two types of vibration voltages applied, respectively, therebetween, said vibration voltages having opposite polarities and the same absolute value.

9. The gyro sensor according to claim 7 or 8, which includes a distance-adjusting electrode which is disposed on the surface of said support base plate opposed to said driven mass body and in adjacent relation to said stationary driving electrode, and adapted to adjust a distance between said driven mass body and said stationary driving electrode by means of an electrostatic force to be generated between said driven mass body and said stationary driving electrode in response to a voltage applied therebetween.

10. The gyro sensor according to any one of claims 7 to 9, wherein said stationary driving electrode is formed on said support base plate except for a region thereof opposed to a region of said driven mass body where a vibrational

amplitude is to be maximized.

11. The gyro sensor according to claim 7, wherein said stationary driving electrode is disposed on the surface of said support base plate opposed to said driven mass body, wherein said stationary driving electrode and said electrode wiring are concurrently in contact with said primary base plate and electrically connected to one another through said primary base plate joined to said support base plate.

12. The gyro sensor according to any one of claims 1 to 11, wherein said driven mass body has a thickness dimension greater than that of said detection mass body.

13. The gyro sensor according to any one of claims 1 to 12, wherein said driven mass body has a through-hole penetrating therethrough in a vibration direction thereof.

14. The gyro sensor according to any one of claims 1 to 13, wherein said primary base plate is provided with a frame fixed to said support base plate in such a manner as to surround around said driven mass body and said detection mass body, and either one of said detection mass body and said frame has a detection-mass-body-protecting protrusion provided in a protruding manner thereon to regulate a maximum displacement amount of said detection mass body.

15. The gyro sensor according to any one of claims 1 to 14, wherein said primary base plate is provided with an

acceleration-detecting electrode which is disposed in a plane along said support base plate and in opposed relation to said driven mass body with a given distance in a direction orthogonal to the displacement direction of said detection mass body, said acceleration-detecting electrode being operable in cooperation with said driven mass body to serve as an acceleration detector for detecting a displacement amount of said driven mass body in the direction orthogonal to the displacement direction of said detection mass body in the plane along said support base plate.

16. A sensor apparatus comprising two of the gyro sensors as defined in either one of claims 1 to 15, and a signal processing section adapted to drive said gyro sensors in such a manner that the respective driven mass bodies of said gyro sensors are vibrated in opposite directions, and to output the difference between respective outputs of said gyro sensors.